We claim:

1. A process for producing dry powders of one or more carotenoids, which comprises

a) suspending one or more carotenoids in an aqueous molecular or colloidal solution of a mixture of trehalose and at least one protein-containing protective colloid and

b) converting the suspension which has formed into a dry powder by removing the water and, if appropriate, additionally used solvents and subsequent drying, if appropriate in the presence of a coating material.

2. The process according to claim 1, wherein the suspension prepared in process step a) is ground before conversion into a dry powder.

3. The process according to claim 1, wherein the suspension in stage a) comprises the following steps:

a_1) dissolving one or more carotenoids in a water-miscible organic solvent or in a mixture of water and a water-miscible organic solvent or

a_2) dissolving one or more carotenoids in a water-immiscible organic solvent and

a_3) mixing the solution obtained as in a_1) or a_2) with an aqueous molecular or colloidal solution of a mixture of trehalose and at least one protein-containing protective colloid, resulting in the hydrophobic phase of the carotenoid as nanodisperse phase.

4. The process according to any of claims 1 to 3, wherein casein or a caseinate or mixtures thereof are used as protective colloid.

5. The process according to any of claims 1 to 4, wherein the carotenoids used are oxygen-containing carotenoids.

6. The process according to any of claim 5, wherein the oxygen-containing carotenoids are compounds selected from the group consisting of astaxanthin, canthaxanthin, lutein, zeaxanthin, citranaxanthin and ethyl β-apo-8'-carotenoate.

7. A process for producing an astaxanthin dry powder, wherein

a) astaxanthin is dissolved in a water-miscible organic solvent or a mixture of water and a water-miscible organic solvent at temperatures above 30°C,

b) the resulting solution is mixed with an aqueous molecular or colloidal solution of a mixture of trehalose with casein or a caseinate or a mixture of trehalose with casein and a caseinate, and

c) the suspension which has formed is converted into a dry powder.

8. The process according to claim 7, wherein a mixture of trehalose and sodium caseinate is used as protective colloid in process step b).

9. A carotenoid-containing dry powder obtainable by a process as defined according to any of claims 1 to 8.

10. The dry powder according to claim 9 with a carotenoid content of from 0.1 to 40% by weight.

11. The dry powder according to claim 10, comprising 10 to 25% by weight of astaxanthin.

12. The use of the carotenoid-containing dry powders as defined according to any of claims 9 to 11 as addition to human foods, pharmaceuticals and/or animal feeds.

Method for producing dry powders of one or several carotenoids

Abstract

The invention relates to a process for producing dry powders of one or more carotenoids, which comprises

a) suspending one or more carotenoids in an aqueous molecular or colloidal solution of a mixture of trehalose and at least one protein-containing protective colloid and

b) converting the suspension which has formed into a dry powder by removing the water and, if appropriate, additionally used slvents and subsequent drying, if appropriate in the presence of a coating material.